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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,629	01/22/2002	Chang Bum Kim	MEMC 01-0151(2960.1)	5778
321	7590	03/16/2004	EXAMINER	
SENNIGER POWERS LEAVITT AND ROEDEL ONE METROPOLITAN SQUARE 16TH FLOOR ST LOUIS, MO 63102			STEIN, STEPHEN J	
			ART UNIT	PAPER NUMBER
			1775	

DATE MAILED: 03/16/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/054,629	KIM ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Stephen J Stein	1775	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☐ Responsive to communication(s) filed on 16 January 2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 52-63 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 52-57 and 59-63 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>5/22/02+10/21/02</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Election/Restrictions***

1. Applicant's election of Group II (Claims 52-63) in Applicants' response filed January 16, 2004 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

### ***Claim Rejections - 35 USC § 102/103***

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 52-56 and 58-61 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over WO 98/45508 (Falster '508).

Falster '508 teaches a single crystal silicon wafer having a central axis a front side and a back side which are generally perpendicular to the circumferential edge of the wafer with the wafer comprising a first axial symmetric region in which vacancies are the predominant intrinsic point defect (vacancy dominated) which is *substantially free* of agglomerated defects (e.g. has some agglomerated vacancy defects present) and second axial symmetrical region in which silicon self interstitial atoms are the predominant intrinsic point defect (interstitial dominated) and which is substantially free of agglomerated silicon self-interstitial intrinsic point defects (e.g. free of the A-type agglomerated interstitial defects (claims 1-13 and figure 4). The reference does not disclose the presence of the any B-type agglomerated defects in the in the second axial

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region. Falster' 508 further teaches that upon cooling from 65-75 hours yields a wafer of 300mm diameter (150mm radius) (Page 43, lines 5-9). The reference still further teaches that axial symmetrical region 6 (interstitial dominated region) has a width which is 40% the length of the radius and additionally teaches that axial symmetrical region 9 (which coincides with axial region 9 – the vacancy dominated region) has a width which is 60% the length of the radius (Page 16, lines 16-33). Falster '508 still further teaches that the wafer has less than about 13 ppma oxygen (i.e. 0-13 ppma oxygen) (see claim 11). With regard to the claimed limitations regarding the oxidation induced stacking fault concentration and the number of LPDs equal or greater than 0.12 microns, it is the examiner's position that the upon heating the wafer disclosed in Falster '508, the wafer will exhibit an induced stacking fault concentration of less than about  $10/\text{cm}^2$ , and a less than about 10 LPDs on the surface which are equal to or greater than 0.12 microns in size, since the reference teaches a substantially similar method of manufacture. It has been held that where the claimed and prior art products are identical or substantially identical in structure or are produced by identical or a substantially identical processes, a prima facie case of either anticipation or obviousness will be considered to have been established over functional limitations that stem from the claimed structure. *In re Best*, 195 USPQ 430, 433 (CCPA 1977), *In re Spada*, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). The *prima facie* case can be rebutted by evidence showing that the prior art products do not necessarily possess the characteristics of the claimed products. *In re Best*, 195 USPQ 430, 433 (CCPA 1977).

***Allowable Subject Matter***

4. Claim 58 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.


5. The following is a statement of reasons for the indication of allowable subject matter:

The prior art fails to teach the claimed wafer with an oxygen content of in the range of 14.5 to about 18 PPMA. The reference teaches away from the this limitation by disclosing that in wafers with 14 PPMA to 18 PPMA the formation of oxygen induced stacking faults and bands of enhanced oxygen clustering just inside the VI boundary becomes more pronounced and each is a potential source of problems in a given integrated circuit fabrication process (See page 25, lines 25-31).

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen Stein whose telephone number is 572-272-1544. The examiner can normally be reached on Monday through Friday from 8:30 a.m. to 5:00 p.m. If the attempts to reach the examiner are unsuccessful, the examiner's supervisor, Deborah Jones can be reached by dialing 572-272-1535. The official fax number is 703-872-9306.

March 8, 2004

  
Stephen J. Stein  
Primary Examiner  
Art Unit 1775